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INFLUENCE OF INCENTIVE ON STRATEGIES OF HUMAN CHOICE BEHAVIOR IN A FOUR ALTERNATIVE TRANSFER OF LEARNING PROBABILITY TASK

An abstract of a thesis by
Robert J. Hanzelon
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Drake University
Advisor: Jerome M. Feldman

The Problem: Forty-eight human Ss were presented with a four choice probability learning task. Two groups of 24 Ss each were placed under different incentives - Equitable Wage (EW) and Gambling Wage (GW). It was anticipated that a transfer of learning effect would be present. Also, it was anticipated that the test in which the most frequently and least frequently presented alternatives were in opposite positions from that presented during pre-training would be the most difficult test presented.

Procedure: All Ss were presented with 120 trials during pre-training and 60 trials in each of the four probability schemes during the test session. During one of the four tests, each alternative was the most frequently presented alternative. In each test, the four alternatives were presented in the following percentages: 56.25; 18.75; 18.75; and, 6.25.

Findings and Conclusions: The GW group (greater incentive given) performed significantly more accurately than the EW group (lesser incentive given). Although both incentive groups approximated probability matching choice behavior, Ss in the GW group made more correct responses by distributing more responses to the most frequently presented alternative and fewer responses to the least frequently presented alternative than did the EW group. No support was present for a transfer of training effect nor the expected task difficulty.

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by

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Robert J. Hanzelon

Approved by Committee:

James M. Feldman
Chairman

Stephen C Bitgood

Stuart Fiedleman

Earle L. Canfield
Dean of the School of Graduate Studies

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CHAPTER I

INTRODUCTION

In a simple probability learning task, there are two or more mutually exclusive responses which could be made on any one trial. Hilgard and Bower (1966) describe probability learning as a task in which S is to predict, on each trial, which of two events, or stimuli, is going to occur. After the prediction is made, S is shown the correct response. Ordinarily, the order of stimulus presentations is random within the limit of the probability schedules employed. Because the probability of occurrence of each stimulus is between zero and 100 percent, S has insufficient information available to predict with complete accuracy the occurrence of an event on any one trial. "Probability learning" is the term most often used to describe this experimental paradigm.

Probability learning has been studied using both humans and infra-human subjects. Simple visual and spatial tasks have been used to observe probability learning behavior in animals at all levels of the phylogenetic scale. Cockroaches (Longo, 1964) and fish (Behrend & Bitterman, 1961) have displayed behavior in which these animals respond to each alternative approximately as frequently as each alternative was presented. Warren (1965) summarizes the results of literature on turtles, pigeons, rats, and monkeys by observing that these animals respond to the most frequently reinforced almost exclusively.

Studies by Bitterman, Wodinsky, and Candland (1958), Marrone and Evans (1966), and Weitzman (1967) have all observed similar behavior to that described by Behrend and Bitterman (1961). For example, Marrone and Evans observed probability learning in a spatial discrimination with fish (African mouthbreeders). This study investigated two-choice performance using a guidance procedure. Ss were exposed to various probability schedules ranging from a chance level of presentation to an 80:20 ratio of presentation. In addition, a three-choice probability task was presented using a 20:60:20 schedule. In both situations, Ss responded by choosing each alternative approximately as frequently as each alternative was presented.

Most probability learning studies with rats have indicated that rats display a different pattern of behavior than fish. A study by Uhl (1963) presented rats with a lever pressing task in a Skinner box. A correction and a noncorrection procedure were manipulated with probability schedules of 60:40, 70:30, and 90:10. Results indicated that Ss responded by choosing the more frequently reinforced alternative in a greater proportion than the actual ratio of presentation. The behaviors of rats and fish represent the two major patterns that have been observed. Sutherland and Mackintosh (1971) have questioned whether these are truly different patterns. They contend that Ss occupying various positions on the phylogenetic scale differ in terms of accuracy of responding

rather than in terms of type of strategy used in the problem situation.

A study by Grant, Hake, and Hornseth (1951) illustrates the basic probability learning experiment using human Ss. In this study, Ss were given the task of guessing which of two lights would be illuminated on each trial. One light was mounted on the left side and one on the right side of a 1.2 meter panel. The left light was lit on all trials to indicate the beginning of a trial and was used as a "ready" signal. As this light flashed on, S was required to guess verbally whether or not the right light would also flash on. The intent of this study was to examine the verbal conditioned response, "yes" or "no", as a function of the percentage of positive or "reinforced" trials during a training series. Probability schedules of 100, 75, 50, 25, and 0 percent presentation of the right light were used. All Ss received 60 trials during the course of training. Observations of the performance of these Ss indicated that the initial trials were responded to at a chance level. That is, Ss responded equally often with a "yes" or "no" response. However, as training progressed, Ss began guessing each alternative in a similar proportion to the actual presentation of the two alternatives. If the right light was presented on 75 of 100 trials in a random sequence and absent on the other 25, Ss would indicate that the right light would appear on 75% of the trials. Deese and Hulse (1967) and Estes and

Straughan (1954) refer to this pattern of responding as "probability matching". This term refers to the choosing of the more frequently presented alternative in the same relative frequency as the actual frequency of presentation.

Some researchers (e.g., Deese & Hulse, 1967; Millward, 1971) have indicated that probability matching is not the strategy that maximizes correct responses. That is, in a two-choice situation in which one choice is presented more frequently than the other, the more frequently presented alternative should be chosen exclusively to maximize correct responses. This can be illustrated by extending the mathematical example used with the Grant et al. (1951) study. If one alternative is presented 75 percent of the time (e.g., "light-on") and the other alternative (e.g., "light-not on") 25 percent of the time, and S randomly chooses the 75 percent alternative about 75 percent of the time, it could be expected that S will be correct approximately 56.25 percent of the time (.75 x .75 = .5625). However, if S chooses the 75 percent alternative exclusively, S would be correct on approximately 75 of each 100 trials.

The results of the study by Grant et al. (1951) indicated the typical behavior of human Ss in a two-choice probability learning situation to be probability matching. However, the introduction of an incentive may affect the probability matching or maximizing response strategy. The Uhl (1963) study, cited earlier, also manipulated incentive by varying the concentration

of the sucrose solution used for reinforcement. As the concentration of the sucrose was increased within the probability schedule, Ss increased their rate of responding to the most frequently presented alternative. That is, Ss went from matching behavior to maximizing behavior.

Human Ss have been observed to behave in a similar pattern. With the introduction of an increased quantity of reinforcement, human Ss also increase the rate of responding to the most frequently presented alternative (Edwards, 1956; Siegel & Goldstein, 1959; Suppes & Atkinson, 1960). Results indicate that Ss tend to choose the response that will procure the greatest perceived amount of reinforcement. For example, in a study by Edwards (1956), Ss were presented with a two-choice probability task. Ss were required to bet one chip on each trial. If S was correct, S received two poker chips and if incorrect, S lost the original poker chip. Probability schedules of .60 - .40, .70 - .30, and .80 - .20, with left side indicated first, were presented on days 3, 5, and 7 respectively. On the first day, the probability schedule used for all Ss was such that on half of the trials neither alternative was correct. On the ninth day, the left alternative never paid off and the right alternative was correct on half the trials. Days 2, 4, 6, and 8 were control days and the probability of occurrence of each alternative was .50 percent. The results indicated that Ss, on days 3, 5, and 7, chose the more frequently presented alternative more

frequently than would be expected from Ss who probability match. This finding suggests that manipulations in incentive may affect the utilization of a probability matching or maximizing strategy in humans.

A study by Geller, Whitman, and McGuire (1972), also manipulating the incentive variable with human Ss, illustrates choice behavior in a two dimensional probability task. The task presented contained two stimulus dimensions, shape and location. Shape was defined as the letter "U" presented right side up or upside down. Location was defined as the letter "U" presented on the left side or right side. Each dimension appeared on an independent probability of occurrence schedule of 70:30. The marginal products of the shape x location matrix were as follows: DR(down-right) = .70 x .70 = .49; DL(down-left) = .70 x .30 = .21; UR(up-right) = .30 x .70 = .21; and UL(up-left) = .30 x .30 = .09. The symbol "U" was presented on each trial by the illumination of one of two miniature readouts. The Ss were asked to predict the shape and location of the "U". Ten familiarization trials were given followed by 200 stimulus presentations occurring in a random manner.

Incentive was manipulated by displaying positive reinforcement through the use of a mechanical counter display. Five groups of Ss (N = 20) were placed under different incentive conditions in the following manner: a) Group No Counter - No counter was present; b) Group Both - Counter

advanced only following correct predictions of both shape and location; c) Group Either - Counter advanced if either shape or location were successfully predicted; d) Group Shape - Counter advanced only if shape was successfully predicted; e) Group Location - Counter advanced only if location was successfully predicted.

Results indicated that predictions in the Group No Counter and Group Both approximated a "probability-matching" pattern. That is, Ss guessed each alternative would appear approximately as many times as each alternative was actually presented. In Group Either, Group Shape, and Group Location, Ss tended to underguess the most frequently presented alternative. It was indicated that this result was due to an interference factor. During the initial instructions, Ss were not informed that only one dimension was relevant. Without knowledge of what constituted a correct response, Ss were unable to determine a course of responding based on full information. The Group No Counter and Group Both were reinforced only when both cues were correctly predicted. These groups were not presented with the confusion of trying to detect the relevant cue. This added activity for the groups having only one relevant cue presumably influenced their choice behavior.

The present study was performed in order to expose human Ss to a four choice probability task. This task was chosen because it potentially presented a more complex

situation than is found in the typical two choice probability learning task. In addition, each group in the study was placed under a different incentive condition. This was done to determine if Ss would respond in a probability matching or maximizing manner as previous research has indicated occurs in a typical two-choice probability learning task. It was presumed that Ss receiving the greater incentive would perform more efficiently than the group receiving the lesser incentive. That is, if human Ss detect the relationship of the four alternatives in each of the four probability schedules, it was anticipated that the lower incentive group would approximate a probability matching pattern and the higher incentive group will tend toward a maximizing behavior.

Another purpose of this experiment was to observe the behavior of another phenomenon typically presented in the simpler two-choice discrimination tasks. Harlow (1949) performed a study with monkeys using a series of discrimination problems. It was predicted that performance on the later problems would be better than performance on the earlier problems. Eight monkeys were presented with 312 discrete two stimulus object problems in which shape, color, height, and other cues were varied between the problems. That is, no two consecutive problems contained the same two stimuli. The Ss were placed in a Wisconsin General Test Apparatus and presented with two stimulus objects. If a correct response was made, S's response was reinforced on that trial. Based

on S's behavior over the first six trials of each problem, the results indicated that learning became more efficient as S was exposed to more problems. Harlow interpreted this behavior to be a "learning set", or a "learning to learn" effect. Basic to this behavior was the positive transfer from one problem to another. In this type of situation, inter-problem improvement was interpreted as the learning of a general response strategy rather than a function of stimulus generalization.

Learning to learn or learning sets have also been studied with human Ss. Postman and Schwartz (1964) studied interlist transfer by varying two factors; 1) class of verbal material; and, 2) type of learning situation. Adjectives or trigrams were presented in either paired-associate or serial learning tasks. The first list presented was one of four kinds: 1) paired-associate adjectives; 2) serial learning adjectives; 3) paired-associate trigrams; or, 4) serial learning trigrams. The Ss were then transferred to a second list, List 2, which was either a paired-associate adjective or serial learning list which was different from the original task. Results indicated that performance on List 2 was better than performance on List 1. In addition, the greater the similarity between the two lists presented, the greater the level of performance on the transfer task. The increased performance with the greater similarity indicated that positive transfer was present. This same type of transfer of learning

is present when a series of similar learning tasks are presented to an S.

Another transfer of learning task has been called discrimination reversal. The typical discrimination reversal task is presented as a two-choice problem with one cue in the display being designated as the reinforced cue, and the other stimulus the nonreinforced cue. Once S learns to respond to this cue according to some predesignated criterion, the reinforced cue becomes the nonreinforced cue. Dufort, Guttman, and Kimble (1954) reported a discrimination reversal study which is both typical in design and result. Rats were placed in a discrimination apparatus and were required to learn a series of ten discriminations. Each time S was correct on 11 of 12 responses, the correct position cue was reversed. That is, the reinforcement contingencies associated with each cue were reversed. Results indicated that as the number of reversals increased, the mean number of errors on each subsequent problem decreased until one trial learning was achieved on the last three problems. The performance of human Ss has also been studied in discrimination reversal problems.

Buss (1956) studied reversal shift behavior and nonreversal shift behavior in humans. The reversal shift requires Ss to alter their pattern of responding from one cue to another cue within the same stimulus dimension. For example, in a task using a black cube and a white ball, Ss

are first required to respond to black and not to white. Once this has been learned to a criterion, responses are reinforced to white but not to black. Thus, the reversal shift involves cue alterations within one dimension. The nonreversal shift, however, involves a shift in relevant stimulus dimensions. Using the same stimulus objects as above, the initial discrimination between black and white is learned to the established criterion. At this point, cues along the previously irrelevant stimulus, shape, dimension become relevant while brightness becomes irrelevant.

Buss presented human Ss with stimuli differing in shape, color, area, and height. However, only one of these stimulus dimensions was relevant to the solution of the problem. Following this training, Ss were presented with a second task containing the same stimulus dimensions as the first. The task was designed such that Ss had the option of solving the problem by using either a reversal or nonreversal shift strategy. Results indicated that 72 percent of the Ss solved the problem by using a reversal shift, while 28 percent employed a nonreversal shift.

In the present study, Ss were presented with four different four-choice probability tasks. The tasks differed in that the most frequently presented alternative required a different choice response in each test. Two predictions were made. The first was that the first test presented should reflect the least efficient rate of responding and the last

test should reflect the most efficient rate of responding. This would represent the acquisition of a learning set. The second prediction was that that test in which the position of the most frequently presented alternative in the pre-training session was interchanged with the position of the least frequently presented pretraining session alternative should present the most difficult transfer task.

In summary, the present study assessed the performance of human adult Ss who were presented with a frou-choice probability task in which two incentive levels were manipulated. Ss were presented with four probability tasks to observe transfer of learning. Additionally, Ss' efficiency in responding to shifts in the reinforced alternative was tested. It was expected that; 1) the higher incentive group would adopt a maximizing strategy of responding while the lower incentive group would adopt a probability matching strategy of responding; 2) the first test presented to each S that differed from the pretraining test would yield poor performance; 3) the easiest test for Ss to learn would be the test corresponding to the pretraining test, and the most difficult test would be the one in which the most frequently presented alternative was located in the position of the least frequently presented pretraining alternative.

CHAPTER II

METHOD

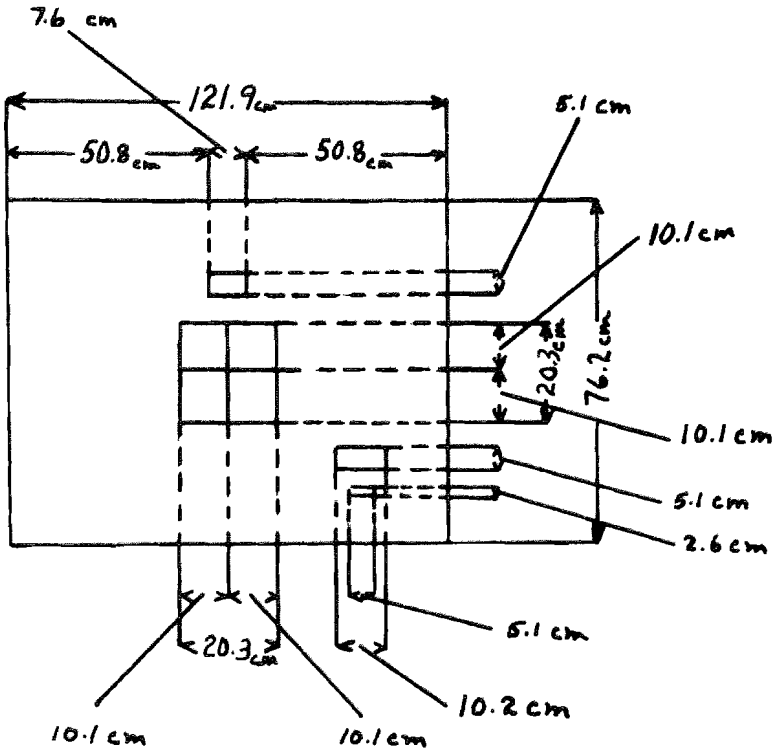
Subjects

Forty-eight Drake University students enrolled in the Introductory Psychology class were used in the experiment. All Ss were between the ages of 18 and 25. The Ss were assigned to groups independent of sex. Each group contained 24 Ss. All Ss were given class credit for participating.

Apparatus

An "H" shaped booth was used for this study. Panels were placed on each side of the booth in order to decrease visual distractions. A ledge was available for S's use as a table while seated at the panel. The S faced a center stimulus panel which contained four green plexiglass plates. The four plates were presented in a square pattern on the center stimulus panel. Figure 1 indicates the dimensions of the booth. Above the top two green plates was a red plexiglass plate. A slot was positioned above S's ledge on the right side of the stimulus panel. Centered above the slot was a blue plexiglass plate. Each transluscent plexiglass plate was illuminated from the rear by a 15-watt light bulb. Positioned in the center of S's ledge was a switch box with four toggle switches positioned in the same pattern as the green lights. These switches were wired to light the green squares.

The E was positioned on the opposite side of S's



Side Panel
243.8cm x 152.4cm

Center Panel
76.2cm x 45.7cm

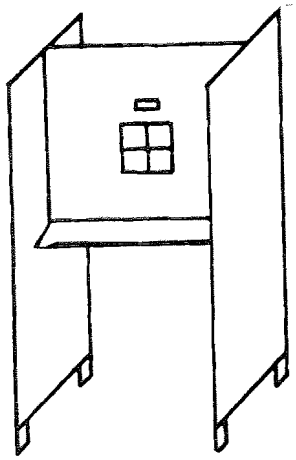


Fig. 1. Apparatus

stimulus panel. A ledge was provided for E's switch box. The switch box consisted of two rows of five switches and one row of small light bulbs connected to S's switch box. These lights indicated a switch closure by S. One row of switches on E's panel could independently light the four green squares. The second row of switches was connected into the circuitry so that a green square would light only when both E's switch and S's corresponding switch were closed. The fifth switch in each of the rows on E's panel lighted either the red "ready" cue light or the blue light which indicated to S that a poker chip was to be returned to E.

Procedure

Each S was asked to be seated in front of the stimulus panel. Instructions were given for S to guess which one of the green panels would light. S was told to do this by manipulating one of the four switches on the ledge each time S saw the red light lit. If no green square was illuminated immediately after a switch was closed, S was instructed to place a poker chip in the slot when the blue light was lit. See Appendix A for the instructions. Each S was given one poker chip for each trial that was presented.

One hundred and twenty trials were presented without interruption during the training session. The probability scheme used for the training session was composed of the following ratio of presentations. Light I appeared 56.25 percent of the time; light II appeared 18.75 percent of the

time; light III appeared 6.25 percent of the time; and, light IV appeared 18.75 percent of the time. The lights were numbered in a clockwise manner for the purpose of identification. The upper left light was called light I. The order of light presentations was random within the given percentage parameters. The percentage of light presentations was generated by multiplying the row and column probabilities of .75 and .25. See Appendix C for the specific ratio of light presentation. Upon completion of the training session, Ss were given a five minute rest period.

Each trial in both the training and test sessions was presented in the following manner. Prior to lighting the red trial light, E activated one of the S's switches. If S closed this switch, the appropriate green plate lit immediately and S was given one poker chip through the slot below the blue plate. If an incorrect response was made, the blue plate was lit until S returned one poker chip through the slot below the blue plate. If S did not respond, he was told to do so. The blue light was then turned off and the correct green plate was lighted indicating the appropriate response for that trial. No time limit was placed on S for guessing.

The first 24 Ss tested were assigned to an Equitable Wage group so that a mean score could be derived and used as a known criterion score for the Gambling Wage group. An equitable wage condition was defined as two-thirds (two clock

hours) of the laboratory participation requirement for Ss in the Introductory Psychology course. Each S was required to participate in laboratory experimentation for three hours during the course of the semester. The gambling wage condition was defined as the opportunity of gaining credit for the full laboratory participation requirement (three clock hours). Here, Ss were told that meeting the established criterion, the mean score of the Equitable Wage group, would result in full credit. However, if this criterion was not met, S would only receive one-third of the requirement, or one hour of credit. All Ss received the same number of trials under similar conditions without regard to type of wage group.

The only variation made for the test sessions was in the instructions. See Appendix B for complete wording of instructions. The instructions given to the Equitable Wage group indicated that two hours of credit would be given and that S would receive one poker chip for each trial to be given during the test session. The Gambling Wage group instructions made the same statement concerning the poker chips and gave the guidelines for earning credit based on meeting a 160 poker chip requirement. One hour of credit was to be given if less than 160 poker chips remained at the end of the test session. Three hours of credit were to be given if 160 or more poker chips remained at the end of the test session. Each S was given one poker chip for each trial to be presented (240 trials) during the test session.

Test I had the same probabilities associated with the same choices as the practice session. Tests II, III, and IV also used the same probabilities, but the choice responses associated with each probability differed from that used in Test I. Each of these patterns was generated by manipulating the marginal probabilities of the rows and columns so that each of the four positions was the most frequently presented alternative for one of the four tests. This manipulation of the marginal probabilities also kept the relative position of the individual probabilities similar, i.e., the least presented and most frequent alternatives were always in diagonally positioned quadrants. Appendix C indicates the probabilities and choice responses associated with each test.

The four test conditions were presented to Ss in a counter-balanced order. The data were analyzed by the Complex Latin Square Design and other statistical methods to be mentioned. The order of presentation for the test session as randomly derived was as follows: Group A - IV, III, II, I; Group B - I, IV, III, II; Group C - II, I, IV, III; and Group D - III, II, I, IV. This order was used for both the Equitable Wage group and the Gambling Wage group.

CHAPTER III

RESULTS

Pretraining

All Ss were presented with 120 probability learning trials during pretraining. Figure 2 indicates the mean percentage of correct responses in blocks of ten trials for Ss in the Equitable Wage (EW) and Gambling Wage (GW) groups. A Two Factor Mixed Design Analysis of Variance (Bruning & Kintz, 1968) applied to the 120 trials of pretraining revealed that the performance of the two groups did not differ significantly from each other, $F(1,46) = 0.67$, p .05. However, performance was significantly different than chance, 25 percent correct responding, as Ss improved over the course of training, $F(11,506) = 4.14$, p .001. The statistical analysis also indicated that although the EW and GW groups were performing at approximately the same level at the end of pretraining, approximately 35.00 percent correct responses, the GW group reached this level faster than the EW group, $F(11,506) = 5.72$, p .001.

In order to assess the pattern of Ss' responses to each of the four alternatives - choices in the probability learning task - the mean percentage of responses and standard deviations to each of the alternatives were computed for the last 20 trials of the pretraining. As can be seen in Table 1, both the EW and GW groups approximated the actual frequencies of each of the four alternatives. In addition to

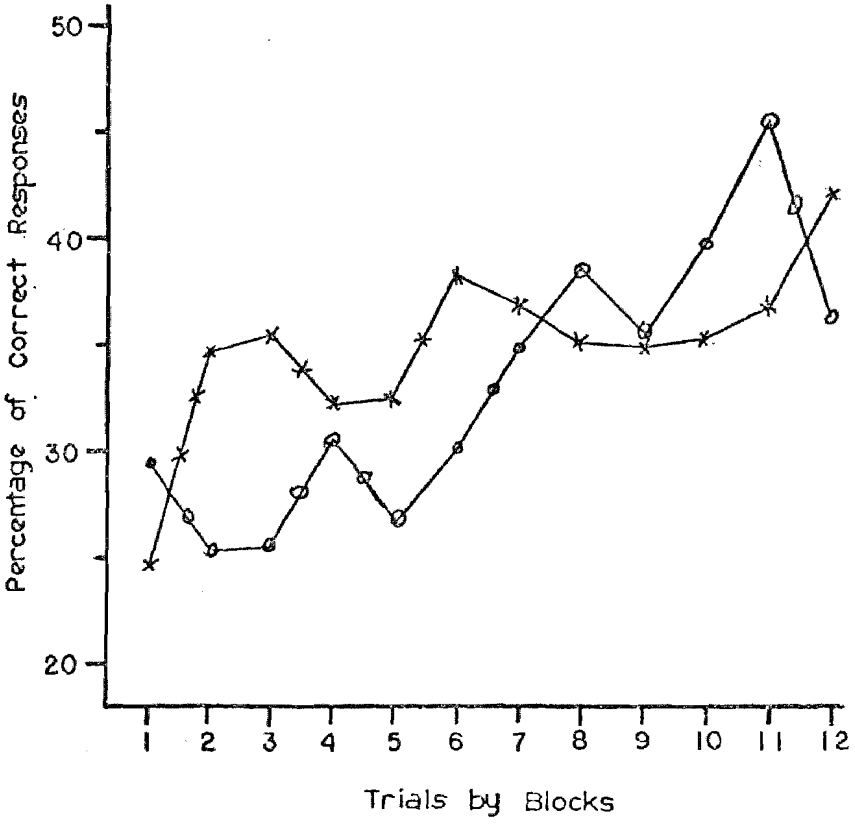


Fig. 2. Percentage of correct responses by incentive group during the pretraining session.

TABLE 1

Choice Behavior to Four Alternatives by Incentive Group During Last 20 Trials of Pretraining Session

Group		Alternative			
		1	2	3	4
Expected	%	56.25	18.75	6.25	18.75
EW	%	61.05	17.30	5.84	15.84
	SD	0.46	10.48	0.27	0.39
GW	%	61.88	19.80	6.25	12.09
	SD	0.57	0.52	0.27	0.37

the group means, the pattern of responding to the four alternatives was also analyzed according to the performance of each S. Figure 3 depicts the percentage of responses made by Ss to each of the four alternatives. Again, these data indicate that Ss' responses to each of the four alternatives closely approximated the actual percentage of presentation. In order to more specifically indicate how closely Ss matched the actual percentage of presentation of each of the four alternatives, the percentage of Ss responding ± 10 percent of the actual frequency of presentation of each alternative was computed. From Figure 3, it can be seen that 47.92 percent of the Ss approximated the actual percentage of presentation for light cells II, III, and IV were 31.25 percent, 29.17 percent, and 37.50 percent within ± 20 percent.

Test Session

During the test sessions which followed pretraining, each S was presented with 60 trials to each of the four probability schemes displayed in Appendix C. Thus, a total of 240 trials were given during the test sessions. The order of test presentation was random for each sub-group within each incentive group. A Complex Latin Square Design (Bruning & Kintz, 1968) was used to evaluate the total number of correct responses during each of the four tests. Figure 4 indicates that, over all tests, Ss in the GW group made significantly more correct responses than Ss in the EW group, $F(1,40) = 5.91$, p .025. In addition, the performance of Ss differed

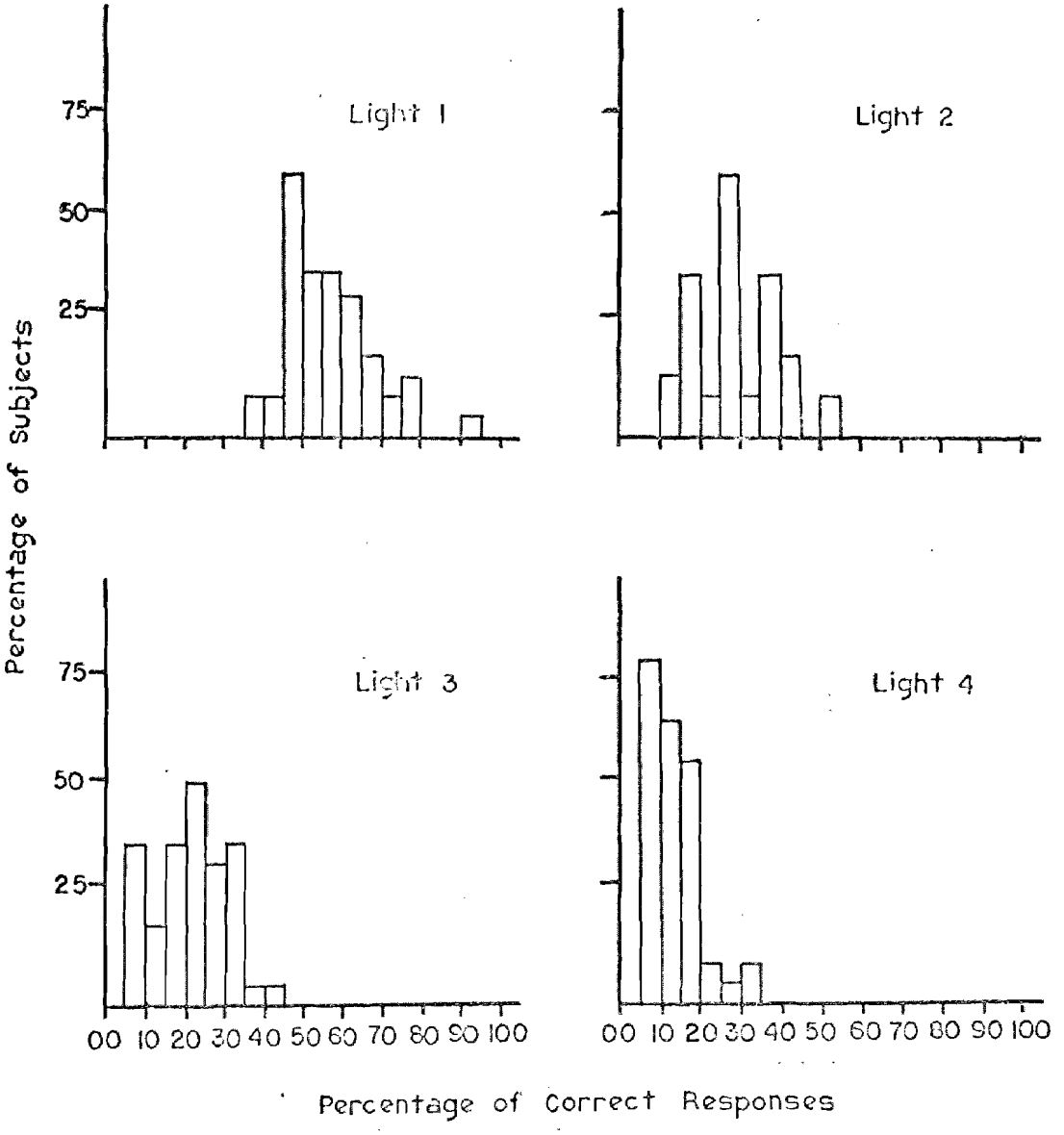


Fig. 3. Choice behavior to each alternative by percentage based on the last 20 trials of the pre-training session.

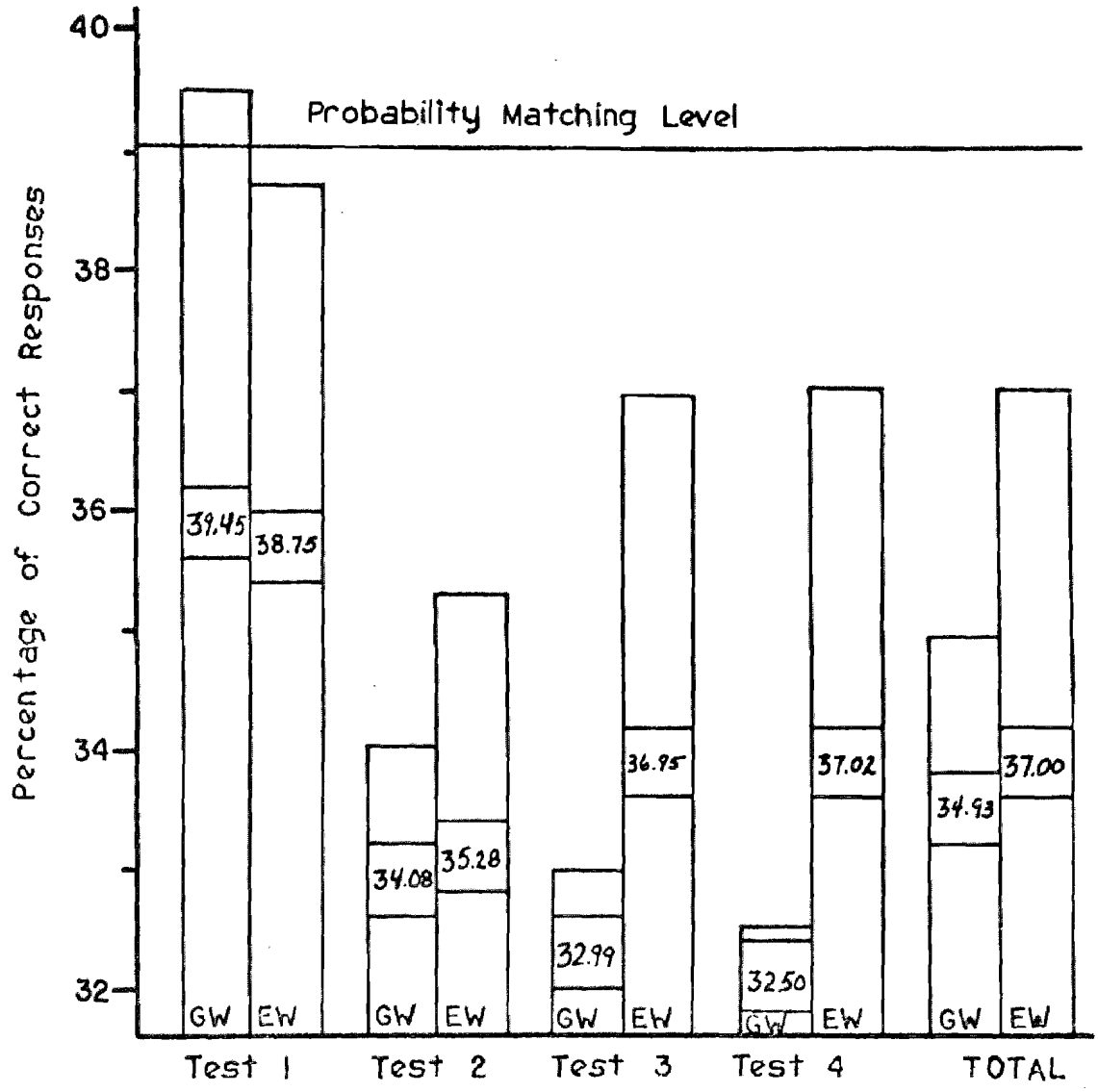


Fig. 4. Correct responses by percentage for the equitable wage and gambling wage groups in each test given during the test session (based on 60 trials per test).

significantly across the four tests, $F(3,120) = 4.70$, p .005.

In general, performance on Test I, the same probability scheme used during pretraining, was better than performance on Tests II, III, and IV. This finding was especially apparent for Ss in the EW group. Ss in the EW group made a lower percentage of correct responses on Tests II, III, and IV than did Ss in the GW group. In addition, the performance of the EW group was noticeably lower than that which would have been expected for Ss who were responding in a manner which approximated the actual frequency of presentation of each of the four alternatives.

In order to more accurately assess the locus of difference between the EW and GW groups during testing, a statistical analysis was conducted on the number of correct responses made in blocks of 20 trials for each of the tests as a function of incentive groups. This data is illustrated in Figure 5. A Three-Factor Mixed Design: Repeated Measures on Two Factors (Bruning & Kintz, 1968) applied to the data indicated that Ss in the GW group made significantly more correct responses than did Ss in the EW group, $F(1,528) = 52.22$, p .001. In addition, the performance of all Ss on Test I was better than on Tests II, III, and IV, $F(3,276) = 32.22$, p .001. Finally, Figure 5 indicates that the percentage of correct responses for Ss within each incentive group did increase by blocks of trials, $F(2,276) = 42.89$, p .001. In Test I, the test that corresponded to the probability scheme presented during

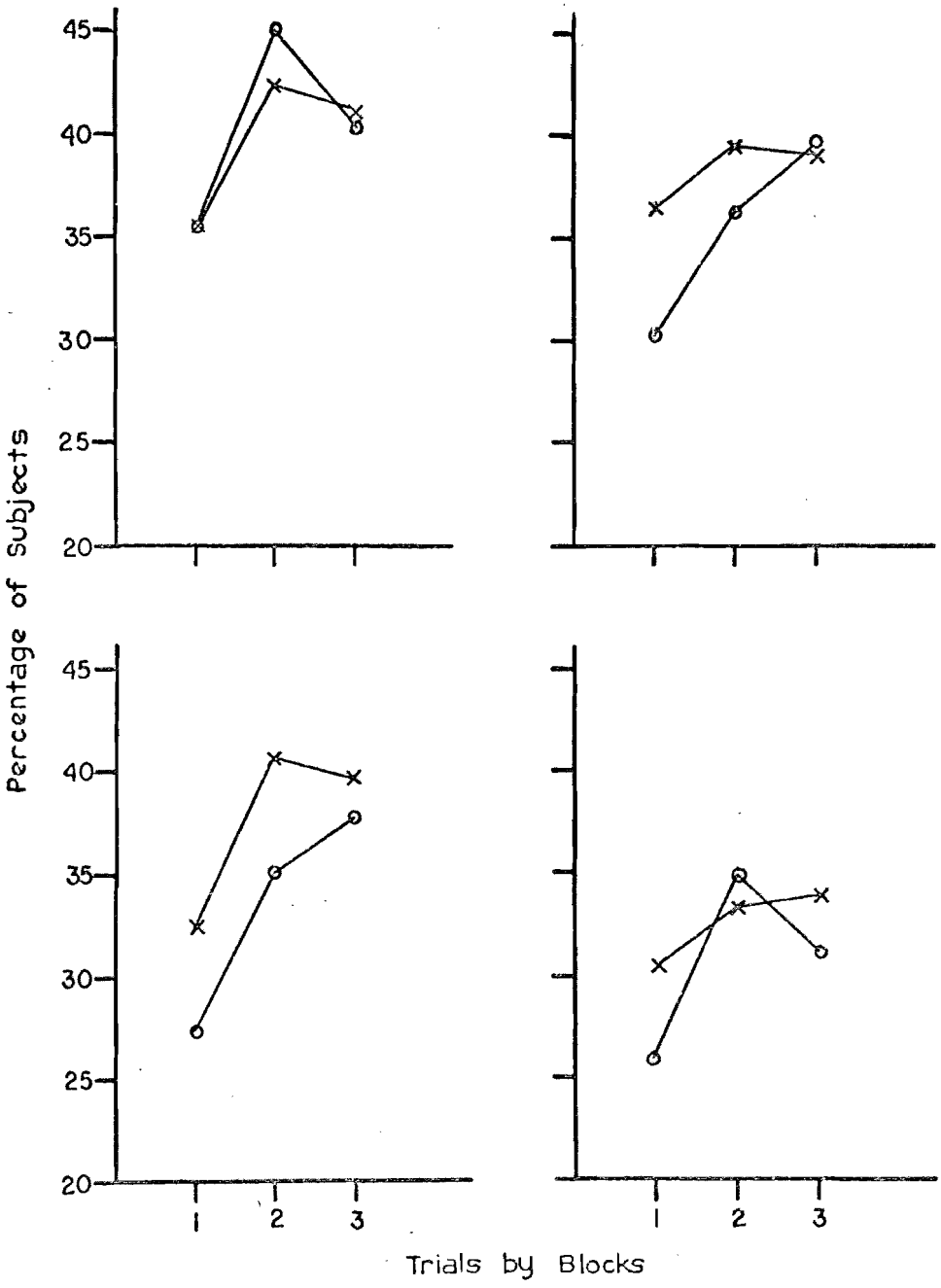


Fig. 5. Correct responses by percentage for the equitable wage and gambling wage groups in 20 trial blocks (based on 60 trials per test).

pretraining, the EW group reached the peak rate of responding during the middle 20 trials. The EW group increased in percentage of correct responding across all trials during Test II and III while Test IV was responded to in a similar pattern to Test I. On the other hand, the GW group appeared to improve in percentage of correct responding from the first 20 trials, and approximated a plateau pattern of responding between the middle 20 trials and the last 20 trials of each test.

In order to assess the pattern of Ss' responses to each of the four alternatives - choices in the probability learning task - the mean percentage of responses and standard deviations to each of the alternatives were computed for the last 20 trials of each test for each incentive group. As can be seen in Table 2, both the EW and GW groups generally approximated the actual frequency of presentation of each alternative across all four tests. However, the mean percentage of responses of Ss in the GW group was greater than that of Ss in the EW group to the most highly probable alternative, the 56.25 percent light, on all tests except Test II. Similarly, the GW group made a lower percentage of responses to the least probable alternative, the 6.25 light, on all tests. This finding is best represented by Table 3 which depicts the ratio of high probability alternative responses to low probability alternative responses for the two incentive groups across all four tests. As can be seen, although

TABLE 2

Choice Behavior by Incentive Group

During Last 20 Trials of Each Test

Given in the Test Session

Group		Test I*				Test II			
		1	2	3	4	1	2	3	4
Expected	%	56.25	18.75	6.25	18.75	18.75	56.25	18.75	6.25
EW	%	61.46	13.96	9.17	15.42	16.67	55.84	16.67	10.84
	SD	1.52	0.58	0.49	0.56	0.80	2.82	0.87	1.09
GW	%	62.92	15.42	5.42	16.25	26.88	52.92	14.38	5.84
	SD	1.11	1.34	0.42	0.68	1.90	2.29	0.90	0.20
		Test III				Test IV			
		1	2	3	4	1	2	3	4
Expected	%	6.25	18.75	56.25	18.75	18.75	6.25	18.75	56.25
EW	%	10.00	18.34	55.00	16.67	17.09	14.80	13.55	54.59
	SD	0.86	0.76	0.93	0.85	0.94	0.72	0.83	1.52
GW	%	5.84	15.84	62.30	16.05	17.30	4.59	15.42	62.71
	SD	0.56	0.51	1.49	0.49	1.34	0.47	1.02	2.94

*This is the same pattern that was presented during the pretraining session.

TABLE 3

Choice Behavior Ratios of the Most Frequently Presented Alternative and Least Frequently Presented Alternative During the Last 20 Trials Given During Each Test of the Test Session

Group	Test I	Test II	Test III	Test IV
EW	6.70:1	5.15:1	5.50:1	3.69:1
GW	11.61:1	9.06:1	10.67:1	13.66:1

The expected choice behavior ratio of Most Frequently Presented Alternative: Least Frequently Presented Alternative is 9:1.

both the EW and GW groups responded a greater percentage of the time to the most probable alternative than the least probable alternative, the performance of the GW group was consistantly above the predicted ratio, 9:1, while the EW group was below this predicted ratio. The result of this pattern of responding yielded a higher percentage of correct responses for Ss in the GW group than Ss in the EW group.

In order to more accurately indicate how closely individual Ss matched the actual percentage of presentation of each of the four alternatives during the last 20 trials of each of the four tests, the choice behavior was analyzed by determining the percentage of Ss responding within ± 10 and ± 20 percent of the actual rate of presentation. Figures 6a, 6b, 6c, and 6d indicate this choice behavior data. From these figures, it can be seen that in Test I, 25 percent of the Ss in the EW group and 33.34 percent of the Ss in the GW group approximated the actual rate of presentation within ± 10 percent of the actual rate of light cell I (presentated on 56.25 percent of the trials). The percentages of Ss matching the actual percentages on light cells II (presented on 18.75 percent of the trials), III (presented 6.25 percent), and IV (presented 18.75 percent) were 12.50 percent, 20,84 percent, and 37.50 percent for the EW group and 20.84 percent, 16.67 percent, and 25.00 percent for the GW group, respectively. At the ± 20 percent range from the actual rate of presentation, 75 percent of the EW group and 58.34 percent of the GW group

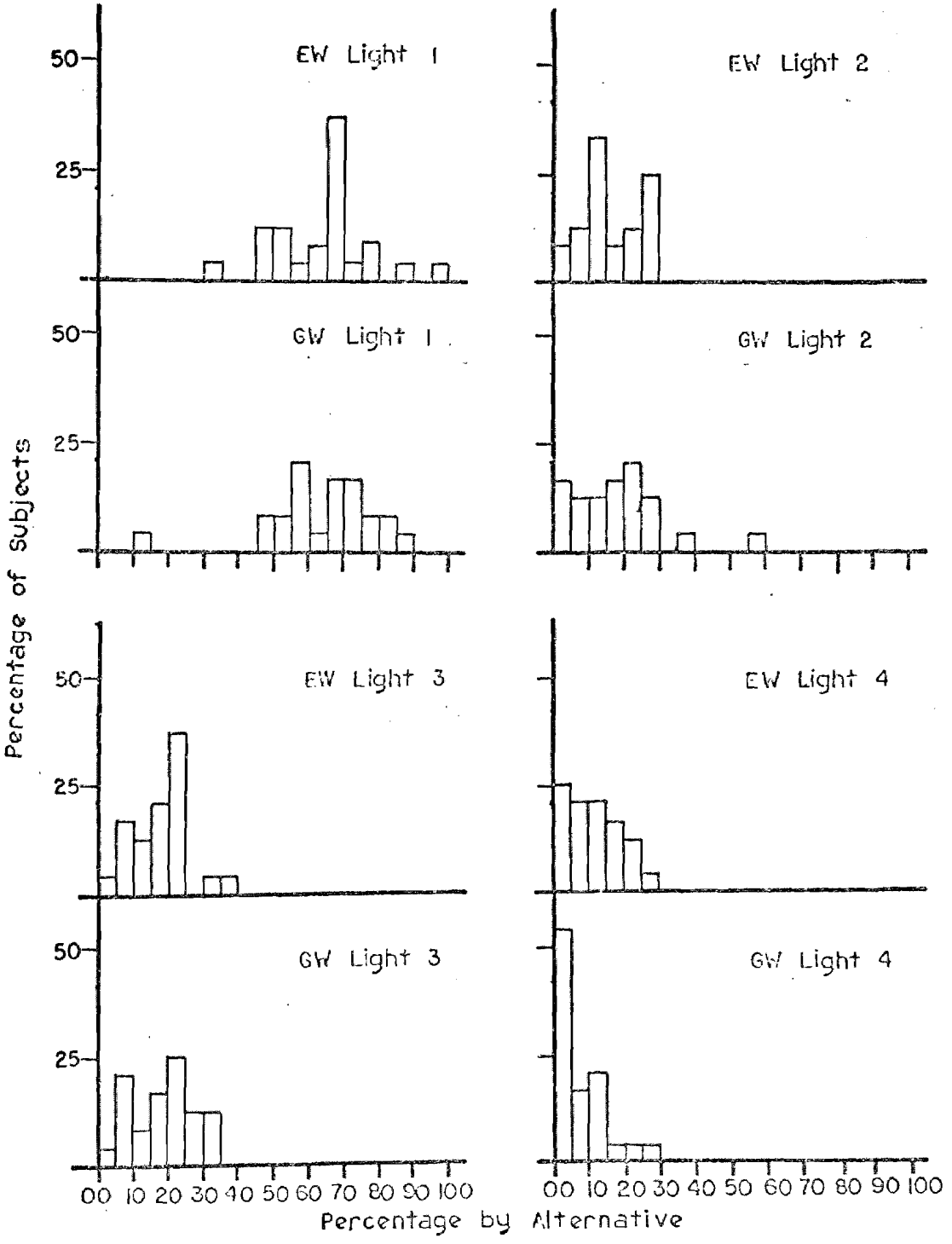


Fig. 6a. Choice behavior to each alternative by percentage based on the last 20 trials of each test given in the test session.

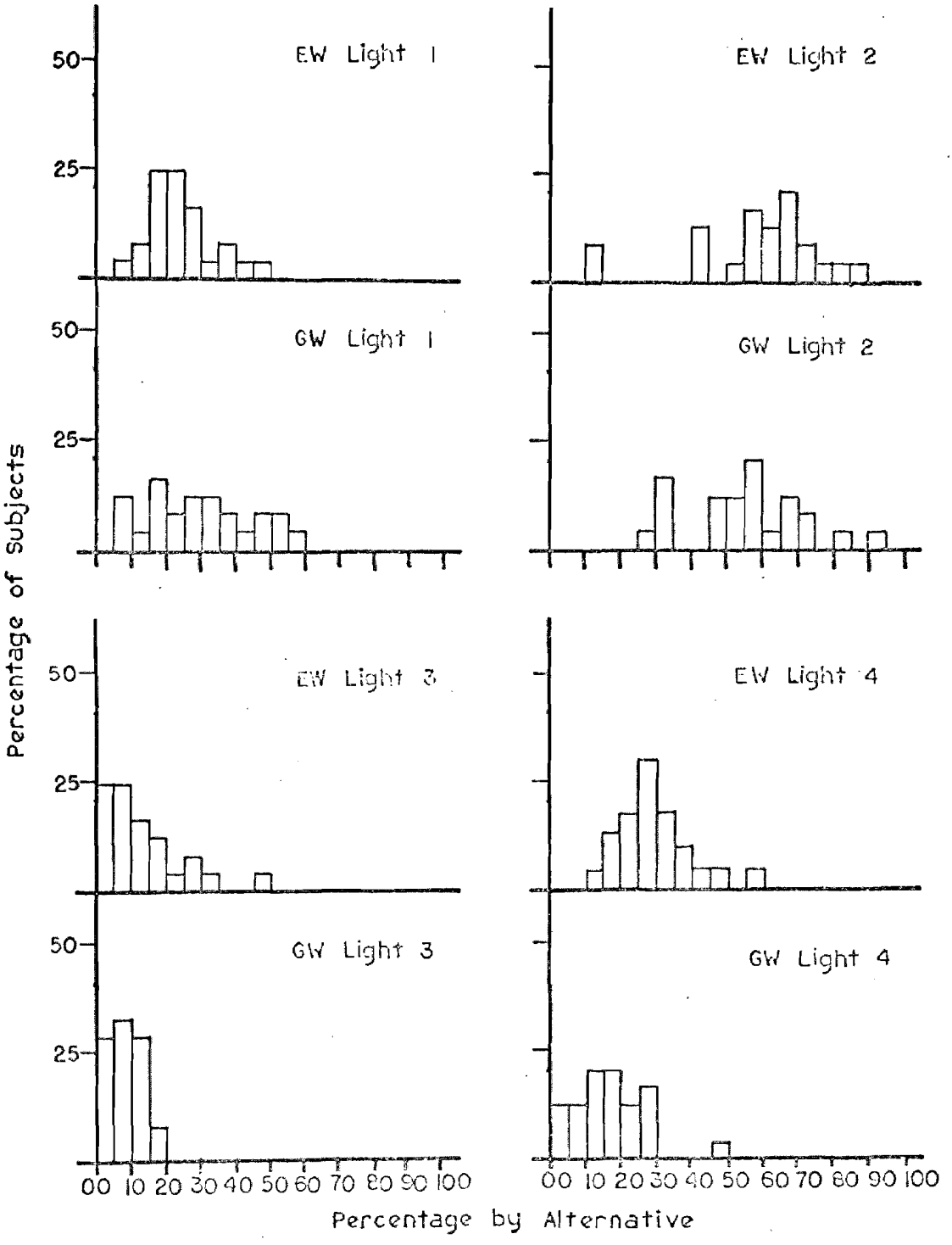


Fig. 6b. Choice behavior to each alternative by percentage based on the last 20 trials of each test given in the test session.

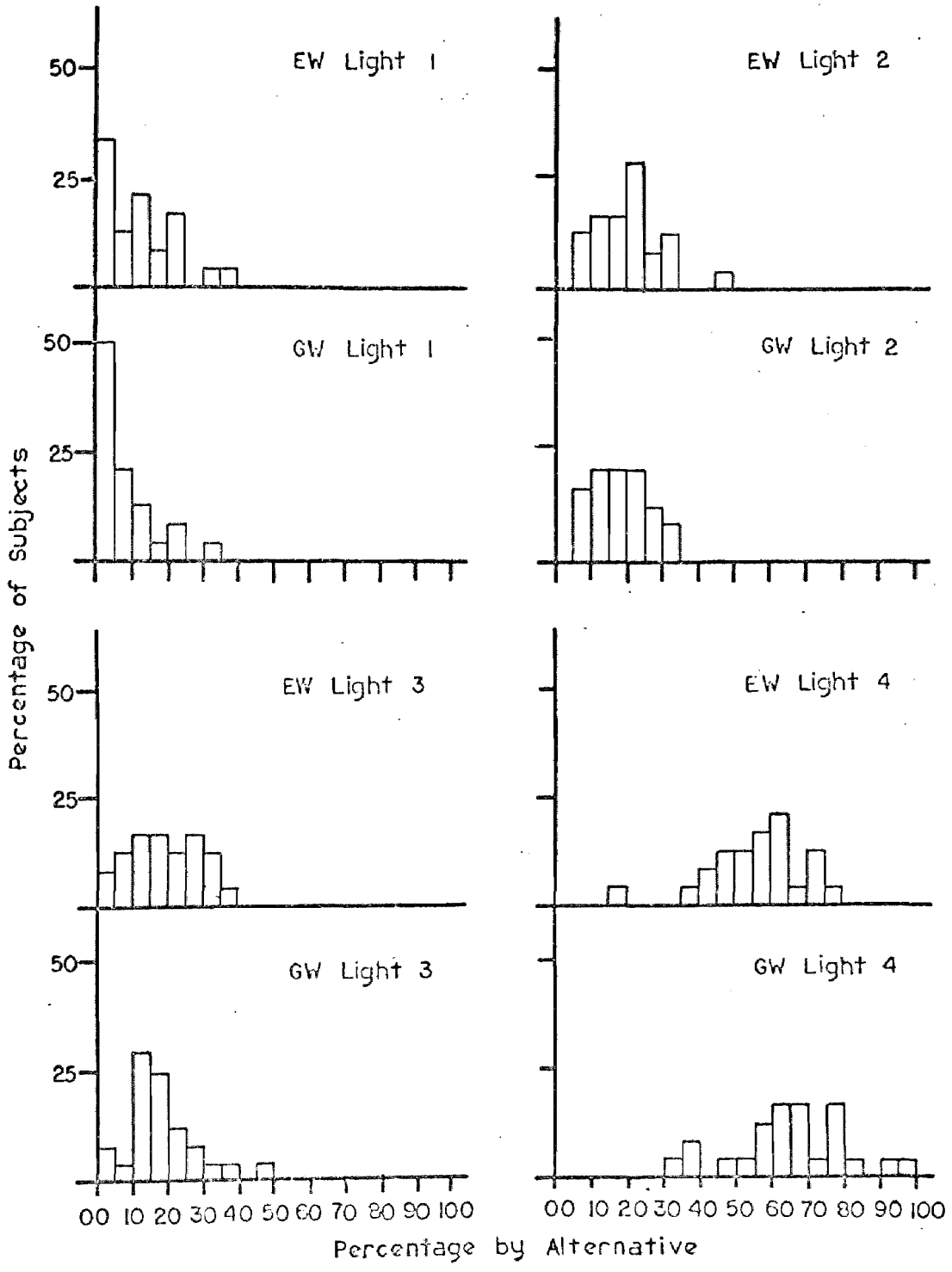


Fig. 6c. Choice behavior to each alternative by percentage based on the last 20 trials of each test given in the test session.

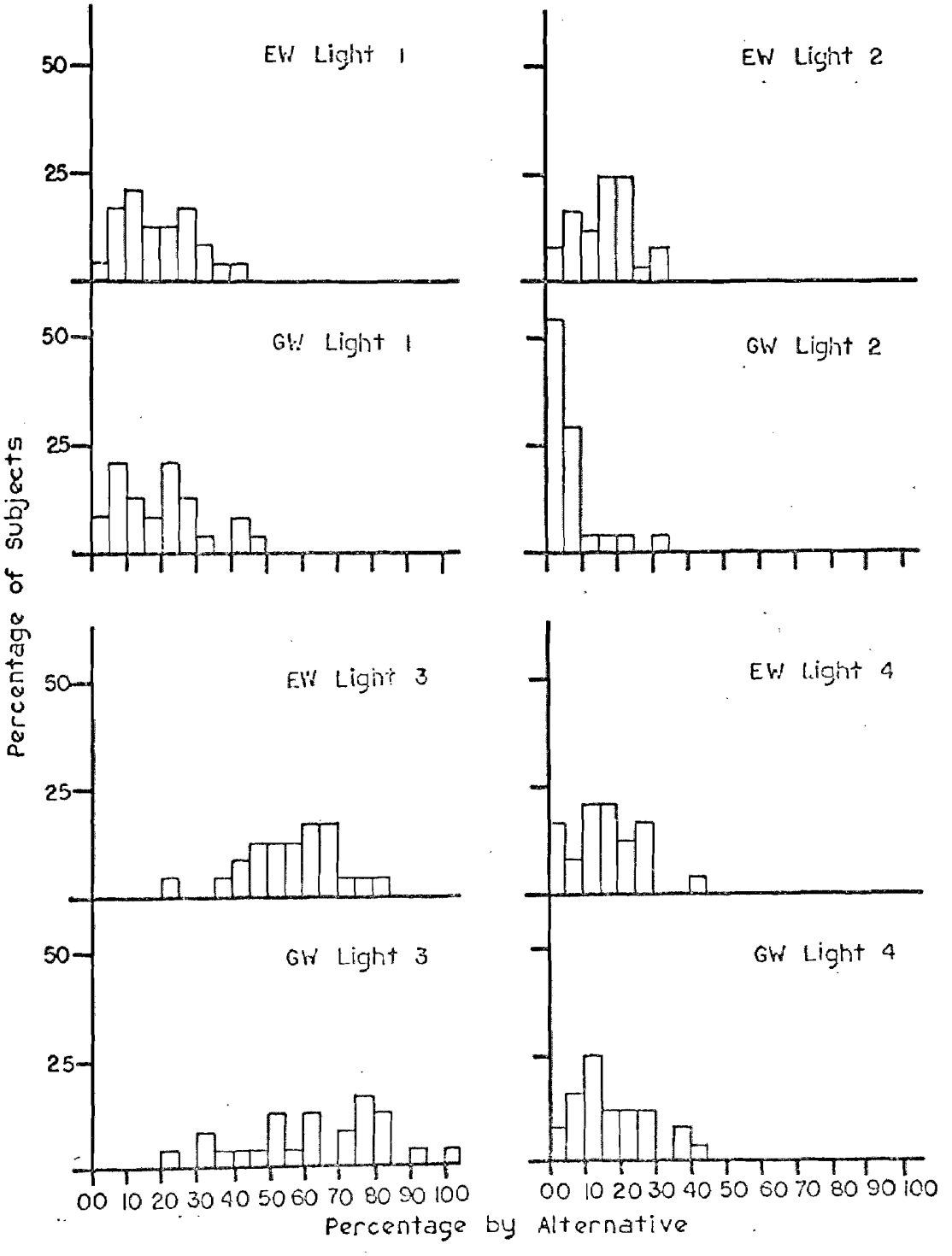


Fig. 6d. Choice behavior to each alternative by percentage based on the last 20 trials of each test given in the test session.

were found to be approximating the actual rate for light cell I. The percentages of Ss matching the actual percentages on light cells II, III, and IV were 45.84 percent, 20.84 percent, and 58.34 percent for the EW group and 37.50 percent, 16.67 percent, and 41.67 percent for the GW group, respectively.

The percentage of Ss responding ± 10 percent and ± 20 percent to the four alternatives on Tests I, II, III, and IV are presented in Table 4. As can be seen, Ss in both the EW and GW groups have responded in a manner which closely approximates the actual frequency of presentation on each test.

No evidence was found to support either a transfer of learning effect or that the test in which the most frequent and least frequent were reversed from the pretraining probability scheme would be more difficult than the other three tests. Table 5 indicates these percentages. Test I, which corresponds to the pretraining probability, was responded to more correctly than the other three tests which did not differ from each other.

Overall, the GW group performed better than the EW group. A significant difference existed between the tests. The GW group responded more frequently to the most frequently presented alternative than the EW group. However, no support was found for a transfer of learning hypothesis or the hypothesis that the test which reversed the positions of the

TABLE 4

Percentage of Ss in the Equitable Wage and Gambling Wage Groups Responding ±10 and ±20 Percent to Each of the Four Alternatives on Tests I, II, III, and IV

		Equitable Wage		Gambling Wage	
Test	Choice	10%	20%	10%	20%
I	1	25.00	75.00	33.34	58.34
	2	12.50	45.84	20.84	37.50
	3	20.84	20.84	16.67	16.67
	4	37.50	58.34	25.00	41.67
II	1	16.67	41.67	8.34	25.00
	2	33.34	58.34	37.50	62.50
	3	16.67	45.84	12.50	33.34
	4	25.00	25.00	33.34	33.34
III	1	12.50	12.50	20.84	20.84
	2	29.17	45.84	20.84	29.17
	3	50.00	66.67	33.34	54.17
	4	12.50	29.17	33.34	33.34
IV	1	12.50	25.00	20.84	29.17
	2	16.67	16.67	29.17	29.17
	3	12.50	33.34	12.50	25.00
	4	41.67	70.84	29.17	33.34

TABLE 5

Correct Responses Summated

by Test During the Test Session

	Correct Responses			
Incentive Groups	Test I	Test II	Test III	Test IV
Predicted	39.04	39.04	39.04	39.04
Equitable Wage	39.45	34.80	32.99	32.50
Gambling Wage	38.75	35.28	36.95	32.50
Total	39.10	35.04	34.97	34.76

most frequently and least frequently presented alternatives from that presented during pretraining would be the most difficult to learn.

CHAPTER IV

DISCUSSION

The present study sought to investigate the behavior of human Ss in a four choice probability learning task. An incentive factor, constant or variable experiment participation credit, was also introduced into the design of the study. This was done to assess whether or not response strategies would be altered as a function of the type of incentive given for participating in the experiment. Previous research has shown that human Ss ordinarily probability match in a probability learning task (Grant, Hake, & Hornseth, 1951). However, Ss who are given large quantities of incentive for correct responding may adopt a probability maximizing strategy (Edwards, 1956). A further goal of the present study was to assess the performance of Ss exposed to a number of different four choice probability learning tasks. A number of studies investigating learning tasks have found interproblem improvement in performance when the tasks were of the same general nature (Postman & Schwartz, 1964).

During the pretraining session, Ss were observed to improve with training within the pretraining problem. Ss were found to perform above the chance level and were correct on 40.63 percent of the trials. The expected rate of correct responding was 39.07 percent. This approximates the actual result as was expected. The choice behavior analysis of pretraining indicated that Ss detected the relative frequency

of presentation of each of the alternatives. That is, the percentages of Ss' responses to the four alternatives were similar to the actual frequencies of presentation. Ss responded the most to the highest probability alternatives, least to the lowest probability alternative, and intermediately to the mid-range probability alternatives. A similar result was also reported by Grant, Hake, and Hornseth (1951). Thus, it appears that human Ss can discriminate a four choice probability task in a similar manner to that found to occur in a two choice probability task. In addition, a matching pattern of responding also occurs in the four choice probability task.

All Ss in the pretraining session were presented with the identical probability task under identical conditions. However, during the test session, Ss were placed in one of two groups with each group receiving a different level of incentive. The results indicated that the GW group exceeded the EW group in percentage of correct responding. This indicated that the Ss whose performance on the probability task determined the amount of credit received for participating in the experiment, the GW group, performed better than Ss whose performance on the task in no way affected the credit received for participating in the experiment. This finding supports the results of a study by Edwards (1956) which showed that Ss receiving a high incentive perform better than Ss receiving a low incentive.

Within each of the four tests, Ss were not found to learn the tasks in a similar pattern. The greatest percentage of correct responses was found to occur in both the middle 20 and last 20 trials of each test. This occurred within both incentive groups. In addition, the GW group exceeded the EW group percentage of correct responses on all tests except the test that corresponded to the probability scheme presented in the pretraining session. In this latter test, Test I, both groups responded at approximately the same level.

It was anticipated that a learning to learn effect would occur across the four tests. However, no consistant pattern of improvement from test to test was observed. Previous research (Postman & Schwartz, 1964) has demonstrated a transfer of learning phenomenon with human Ss. One possible explanation for the result in the present experiment might be that an insufficient number of transfer tasks were given to demonstrate learning to learn. In previous learning to learn studies (Harlow, 1949) hundreds of problems were given before inter-problem improvement was noted. However, in the present study, only four transfer tasks were given. Another possible reason for the lack of a learning to learn finding was the difficulty of the four choice probability task. Learning to learn has ordinarily been demonstrated only using simple two-choice discrimination tasks (Harlow, 1949). However, there are some demonstrations of learning to learn with humans in verbal learning experiments (Postman

& Schwartz, 1964).

It was anticipated that the test in which the position of most frequently and least frequently presented alternative was opposite to that presented in the pretraining session would be more difficult to learn than any of the other three tests. However, the data did not support this finding. The results indicated that Ss, without regard to incentive group, performed the best in the test that corresponded to the probability scheme presented in pretraining. The other three tests were responded to with approximately the same level of correctness. This occurrence would seem to indicate that the position of presentation of the most frequent alternative was not significant in determining S's ability to respond correctly. The ability to respond to the probability schemes seemed to be a function of similarity to the pretraining scheme.

With respect to the two incentive groups, it was observed that both groups responded to the probability schemes presented by approximating the actual rates of presentation of each alternative. This finding was expected if Ss were employing a probability matching strategy. However, one distinct pattern was detected in the two incentive groups. In all of the tests, the GW group exceeded the EW group percentage of responses to the most frequently presented alternative. Conversely, the EW group exceeded the GW group percentage of responses to the least frequently presented

alternative. This difference in choice behavior increased the probability of correct responding for the GW group and decreased the probability of correct responding for the EW group. Based on this observation, there is some indication that human Ss reduce a four choice probability task to a two alternative task by summating responses of the most frequent and least frequent alternatives as opposed to the two neutral alternatives. It then appears that Ss respond to the most frequent-least frequent summating as previous research has indicated for a two-choice probability task. However, this hypothesis should be tested by additional research before being accepted.

This study has indicated that human Ss are capable of learning a four choice probability learning task. As previous cited research indicated, human Ss probability matching pattern (Grant, Hake, & Hornseth, 1951). Neither the expected transfer of learning effect nor inter-test difficulty effect was observed. The GW group responded more correctly than did the EW group. In addition, the GW group distributed a greater percentage of choices to the most frequently presented alternative than did the EW group. This apparently accounted for the difference between the two incentive groups' percentage of correct responding.

This study was conducted to observe human behavior in a more complex probability learning task than had been used in previous research. It is felt that this type of

task should be investigated in future research. The indication that human Ss reduce the four choice situation to a two choice situation would appear to offer further information on human behavior in a complex task.

The incentive factor seemed to have an important effect, i.e., the GW group performed better than the EW group. However, the GW group did not approximate a maximizing strategy as other studies have found (Edwards, 1956). In future research, it is suggested that a stronger incentive might elicit a maximizing strategy. Another consideration for future research is that the probability scheme used during testing should not be the same as that in pretraining. Moreover, if a transfer of learning effect is desired, then, perhaps, a greater number of transfer tests should be used.

The overall findings indicated that Ss' performance is influenced by incentive and Ss do probability match in a four choice probability task. However, under the conditions presented, human Ss do not exhibit inter-problem improvement. The continued investigation of the incentive variable seems particularly important for an understanding of response strategies used in probability learning tasks. Although some experimental investigations have found that humans (Grant, Hake, & Hornseth, 1951), in two choice probability tasks, ordinarily probability match, increasing the incentive can change that strategy to the most efficient one, probability maximizing. Maximizing was not observed for

the GW group in the present experiment, although that group did perform more efficiently than the EW group. Two hypotheses seem quite plausible in accounting for this finding: the GW incentive manipulation was weak; and, or the task was too difficult to generate maximally efficient responding. Thus, two ways of demonstrating maximizing in a four choice probability task might be to increase incentive or to increase the number of trials on each of the transfer tasks.

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APPENDIX A

Instructions Given to Ss at Beginning of Pretraining Session

During this session, you are going to be asked to learn a probability strategy and then be tested on your degree of learning of the strategy.

In front of you is a panel with four green squares numbered one through four and a switch box with four switches similarly numbered with activate the corresponding lights behind each green square. At your right is a box containing some poker chips. Each time the small red light above the green squares lights up, you will make a guess as to which of the green squares will be lit by switching one of the four switches in front of you. If you are correct in your guess, the green square will light up immediately and a poker chip will come through the narrow slot just above the poker chip box. If you are incorrect in your guess, no green light will appear and you must place one poker chip in the chute above the poker chip box, at which time you will be shown which choice was correct. You will then reset your switch to the off position and await the next trial. Questions will be answered now, as there will be no conversation during the test session.

APPENDIX B

Instructions Given to Ss at the Beginning of the Test Session

Equitable Wage Group

You are now entering the test sessions. The rules have been slightly altered since you have drawn a red marble. You now have one poker chip in the box for each trial you will be given. Again, a correct response will earn you one poker chip and an incorrect response will require that you return one poker chip to the chute. Your goal is to accumulate as many poker chips as possible. For your efforts, you will receive two hours credit toward your laboratory participation requirement for Psychology 51.

Gambling Wage Group

You are now entering the test sessions. The rules have been altered since you have drawn a white marble. You now have one poker chip in the box for each trial you will be given. Again, a correct response will earn you one poker chip and an incorrect response will require that you return one poker chip to the chute. Your goal is to accumulate as many poker chips as possible because if you are able to accumulate 160 poker chips at the end of the test session, you will be given three hours of credit toward your laboratory participation requirement for Psychology 51. However, if you fall short of this number, you will be given only one hour credit.

APPENDIX C

Probability Schemes Presented to Ss During the Test Session

Test 1*			Test II		
	.75	.25		.25	.75
.75	light 1	light 2	.75	light 1	light 2
	56.25	18.75		18.75	56.25
.25	light 4	light 3	.25	light 4	light 3
	18.75	6.25		6.25	18.75

Test III			Test IV		
	.25	.75		.75	.25
.25	light 1	light 2	.25	light 1	light 2
	6.25	18.75		18.75	6.25
.75	light 4	light 3	.75	light 4	light 3
	18.75	56.25		56.25	18.75

*This probability scheme corresponds to the scheme presented to all Ss during the pretraining session.

APPENDIX D

Analysis of Variance Table of the Two Factor Mixed Design as Applied to the Full 120 Trials of the Pretraining Session

Source	SS	df	ms	F	p
Total	1722.64	575	--	--	--
Between Ss	192.64	47	--	--	--
Incentive	2.78	1	2.78	0.67	n.s.
Error (b)	189.86	46	4.13	--	--
Within Ss	1530.00	528	2.90	1.16	n.s.
Trial Blocks	113.31	11	10.30	4.14	.001
Trial Blocks x Incentive	156.64	11	14.24	5.72	.001
Error (w)	1260.05	506	2.49	--	--

APPENDIX E

Summary Table for Replicated Latin Square Design of Test Session Data (60 Trials per Test)

Source	SS	df	ms	F	p
Total	3038.22	191	--	--	--
Between Ss	706.07	47	--	--	--
Incentive	73.75	1	73.75	5.91	.025
Test x Order(b)	17.55	3	5.85	.47	n.s.
Test x Order(b) x Incentive(b)	115.37	3	38.46	3.08	.050
Error(b)	499.40	40	12.49	--	--
Within Ss	2332.75	144	--	--	--
Test	226.97	3	75.66	4.70	.005
Order	7.76	3	2.59	.16	n.s.
Test x Order(w)	40.29	6	6.72	.42	n.s.
Test x Incentive	85.06	3	28.36	1.77	n.s.
Other x Incentive	31.27	3	10.43	.65	n.s.
Test x Order x Incentive(w)	10.36	6	1.73	.11	n.s.
Error(w)	1931.04	120	16.10	--	--

APPENDIX F

Analysis of Variance Table of the Three-Factor Mixed Design:Repeated Measures on Two Factors as Applied to the Test Session Blocked by 20 Trials and Incentive Groups

Source	SS	df	ms	F	p
Total	3436.29	575	--	--	--
Between Ss	30.71	47	--	--	--
Incentive	255.88	1	255.88	52.22	.001
Error(b)	225.17	46	4.90	--	--
Within Ss	3108.41	528	--	--	--
Trial Grouping	266.76	2	133.38	42.89	.001
Test	100.48	3	33.50	32.22	.001
I x TG	5.42	2	2.71	.44	n.s.
I x Test	18.65	3	6.22	5.98	.001
TG x Test	25.87	6	4.32	1.01	n.s.
I x TG x Test	25.20	6	4.20	.99	n.s.
Error(1)	571.98	92	6.22	--	--
Error(2)	142.66	138	1.04	--	--
Error(3)	1179.23	276	4.28	--	--

APPENDIX G

Summary Table by Percentage of Correct Responses During the Pretraining Session by Incentive Wage Group (Based on 120 Trials Per S)

Group	S	Equitable Wage	Gambling Wage
A	1	31.67	29.17
	2	38.34	31.67
	3	40.00	45.00
	4	32.50	37.50
	5	30.84	47.50
	6	35.00	26.67
	Total	34.37	36.25
B	1	31.67	41.67
	2	30.84	37.50
	3	33.34	36.37
	4	40.00	36.37
	5	32.50	30.84
	6	27.50	30.00
	Total	32.64	35.56
C	1	30.00	33.34
	2	32.50	31.67
	3	34.17	21.67
	4	43.34	31.67
	5	41.67	35.00
	6	30.84	42.50
	Total	35.42	32.64
D	1	28.34	35.84
	2	33.34	32.50
	3	31.67	29.17
	4	32.50	39.17
	5	28.34	41.67
	6	36.37	32.50
	Total	31.81	34.87

APPENDIX H

Summary Table by Percentage of Choice Behavior During Pretraining by Incentive Group (Based on 120 Trials Per S)

Group	S	Equitable Wage Alternatives				Gambling Wage Alternatives			
		1	2	3	4	1	2	3	4
A	1	47.50	23.34	9.17	20.00	40.00	25.84	9.17	25.00
	2	54.17	15.84	12.50	17.50	41.67	31.67	11.67	15.00
	3	47.50	10.84	10.84	30.84	58.34	19.17	6.67	15.84
	4	44.17	22.50	17.50	15.84	61.67	10.00	3.34	25.00
	5	41.67	25.00	12.50	20.84	65.84	16.67	4.17	13.34
	6	49.17	25.84	11.67	13.34	35.84	24.17	28.34	11.67
	Total	47.37	20.56	12.37	19.73	50.56	21.25	10.56	17.64
B	1	55.00	13.34	9.17	22.50	51.67	25.00	6.67	16.67
	2	47.50	20.84	10.00	21.67	52.50	19.17	7.50	20.84
	3	48.34	29.17	11.67	10.84	56.67	14.17	8.34	20.84
	4	55.00	19.17	4.17	21.67	47.50	20.00	14.17	18.34
	5	44.17	23.34	13.34	19.17	45.84	23.34	6.67	24.17
	6	45.84	27.50	11.67	15.00	39.17	33.34	11.67	15.84
	Total	49.31	22.23	10.00	18.48	48.89	22.50	9.17	19.45
C	1	47.50	24.17	12.50	15.84	51.67	20.84	14.17	13.34
	2	41.67	22.50	13.34	22.50	50.84	21.67	5.00	22.50
	3	40.84	21.67	16.67	20.84	34.17	26.67	10.00	29.17
	4	43.34	26.67	7.50	22.50	50.84	15.84	15.84	17.50
	5	50.84	27.50	7.50	14.17	55.00	22.50	11.67	10.84
	6	48.34	25.84	13.34	12.50	77.50	12.50	3.34	6.67
	Total	45.42	24.73	11.81	18.06	53.34	20.00	10.00	16.67
D	1	45.00	22.50	20.00	12.50	54.17	20.84	5.00	20.00
	2	43.34	15.84	20.00	20.84	47.50	21.67	14.17	16.67
	3	59.17	17.50	12.50	10.84	44.17	24.17	11.67	20.00
	4	43.34	33.34	5.00	18.34	53.34	20.00	5.00	21.67
	5	45.84	32.50	5.84	15.84	65.00	12.50	9.17	13.34
	6	53.34	20.00	5.00	21.67	42.50	25.00	5.00	27.50
	Total	48.34	23.62	11.39	16.67	51.12	20.70	8.34	19.87

APPENDIX I

Summary Table by Percentage of Choice Behavior During Pretraining by Incentive Group (Based on Last 20 Trials Per S)

		Equitable Wage				Gambling Wage			
		Alternatives				Alternatives			
Group	S	1	2	3	4	1	2	3	4
A	1	45.00	20.00	10.00	25.00	45.00	35.00	5.00	15.00
	2	65.00	10.00	10.00	15.00	65.00	20.00	5.00	10.00
	3	18.00	--	10.00	--	80.00	5.00	--	15.00
	4	40.00	30.00	--	30.00	75.00	--	--	25.00
	5	65.00	20.00	5.00	10.00	65.00	35.00	--	--
	6	35.00	35.00	10.00	20.00	55.00	20.00	15.00	10.00
	Total	56.67	19.17	7.50	16.67	64.17	19.17	4.17	12.50
B	1	65.00	10.00	10.00	15.00	45.00	45.00	--	10.00
	2	55.00	10.00	10.00	25.00	75.00	20.00	--	5.00
	3	55.00	45.00	--	--	50.00	30.00	5.00	15.00
	4	70.00	5.00	5.00	20.00	65.00	15.00	5.00	5.00
	5	55.00	20.00	--	25.00	55.00	30.00	--	15.00
	6	70.00	5.00	5.00	20.00	65.00	20.00	5.00	10.00
	Total	61.67	15.84	5.00	17.50	60.84	26.67	2.50	10.00
C	1	75.00	20.00	--	5.00	65.00	20.00	5.00	10.00
	2	55.00	20.00	--	25.00	45.00	30.00	5.00	20.00
	3	45.00	20.00	10.00	25.00	60.00	30.00	10.00	--
	4	60.00	10.00	15.00	15.00	90.00	5.00	5.00	--
	5	75.00	25.00	--	--	50.00	20.00	10.00	20.00
	6	80.00	5.00	--	15.00	100.00	--	--	--
	Total	65.00	16.67	4.17	14.17	68.34	17.50	5.84	8.34
D	1	75.00	5.00	10.00	10.00	70.00	10.00	5.00	15.00
	2	70.00	5.00	25.00	--	70.00	5.00	10.00	15.00
	3	70.00	15.00	--	15.00	60.00	10.00	25.00	5.00
	4	60.00	20.00	--	20.00	45.00	25.00	20.00	10.00
	5	45.00	30.00	--	25.00	50.00	10.00	5.00	35.00
	6	45.00	30.00	5.00	20.00	30.00	35.00	10.00	25.00
	Total	60.84	17.50	6.67	15.00	54.17	15.84	12.50	17.50

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

	Equitable Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
A 1	40.00	20.00	20.00	20.00	20.00	50.00	40.00	40.00	20.00	30.00	10.00	50.00
2	20.00	40.00	50.00	40.00	40.00	40.00	20.00	50.00	20.00	50.00	60.00	30.00
3	20.00	30.00	60.00	30.00	30.00	30.00	40.00	40.00	40.00	40.00	70.00	50.00
4	30.00	--	20.00	10.00	20.00	20.00	80.00	40.00	50.00	40.00	30.00	50.00
5	40.00	30.00	30.00	10.00	--	30.00	50.00	10.00	20.00	50.00	40.00	60.00
6	30.00	20.00	10.00	30.00	40.00	10.00	60.00	70.00	60.00	50.00	40.00	20.00
Total	30.00	23.34	31.67	23.34	25.00	30.00	48.34	35.00	35.00	41.67	40.00	43.34

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Equitable Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
B 1	30.00	30.00	30.00	60.00	30.00	40.00	30.00	30.00	50.00	10.00	20.00	20.00
2	40.00	10.00	10.00	20.00	20.00	40.00	40.00	40.00	40.00	40.00	70.00	10.00
3	30.00	20.00	50.00	40.00	20.00	40.00	50.00	10.00	20.00	50.00	50.00	20.00
4	40.00	20.00	20.00	50.00	30.00	30.00	50.00	50.00	40.00	50.00	70.00	30.00
5	40.00	40.00	30.00	20.00	10.00	20.00	20.00	50.00	30.00	50.00	50.00	30.00
6	--	10.00	--	--	10.00	30.00	50.00	40.00	40.00	60.00	70.00	20.00
Total	30.00	21.67	23.34	30.00	20.00	33.34	40.00	36.67	36.67	43.34	55.00	21.67

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Equitable Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
C 1	40.00	20.00	20.00	10.00	30.00	20.00	30.00	20.00	30.00	50.00	50.00	40.00
2	10.00	20.00	30.00	30.00	10.00	30.00	40.00	60.00	60.00	30.00	40.00	20.00
3	40.00	50.00	--	20.00	30.00	50.00	10.00	60.00	30.00	30.00	40.00	50.00
4	20.00	60.00	40.00	40.00	50.00	50.00	40.00	30.00	30.00	70.00	50.00	40.00
5	40.00	10.00	30.00	10.00	40.00	50.00	50.00	60.00	50.00	40.00	50.00	70.00
6	30.00	10.00	40.00	20.00	30.00	10.00	20.00	20.00	30.00	30.00	60.00	50.00
Total	25.00	28.34	26.67	25.00	30.00	38.34	30.00	41.67	38.34	41.67	48.34	45.00

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Equitable Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
D 1	20.00	10.00	30.00	10.00	60.00	30.00	20.00	20.00	20.00	40.00	50.00	30.00
2	30.00	30.00	30.00	40.00	20.00	30.00	10.00	20.00	50.00	20.00	70.00	50.00
3	30.00	10.00	--	50.00	50.00	30.00	30.00	30.00	40.00	60.00	20.00	30.00
4	20.00	30.00	20.00	60.00	20.00	40.00	20.00	30.00	30.00	40.00	50.00	30.00
5	40.00	30.00	20.00	40.00	40.00	20.00	20.00	60.00	10.00	20.00	10.00	30.00
6	20.00	50.00	30.00	70.00	10.00	30.00	30.00	50.00	40.00	20.00	40.00	50.00
Total	26.67	26.67	21.67	45.00	33.34	30.00	21.67	35.00	31.67	33.34	40.00	36.67

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Gambling Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
A 1	20.00	40.00	20.00	30.00	20.00	60.00	--	20.00	30.00	30.00	40.00	40.00
2	--	40.00	10.00	20.00	20.00	30.00	30.00	30.00	30.00	60.00	40.00	50.00
3	10.00	20.00	60.00	40.00	30.00	50.00	70.00	40.00	70.00	40.00	50.00	60.00
4	20.00	40.00	40.00	20.00	50.00	40.00	50.00	60.00	30.00	50.00	30.00	20.00
5	20.00	50.00	40.00	60.00	50.00	60.00	70.00	30.00	60.00	40.00	60.00	30.00
6	20.00	20.00	30.00	10.00	10.00	10.00	50.00	50.00	10.00	30.00	30.00	50.00
Total	15.00	35.00	33.34	30.00	30.00	41.67	45.00	38.34	38.34	41.67	41.67	41.67

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Gambling Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
B 1	30.00	50.00	40.00	20.00	70.00	60.00	40.00	50.00	50.00	10.00	40.00	40.00
2	30.00	30.00	40.00	50.00	30.00	20.00	20.00	30.00	30.00	40.00	70.00	60.00
3	50.00	20.00	30.00	30.00	30.00	20.00	50.00	50.00	40.00	70.00	20.00	30.00
4	40.00	40.00	40.00	--	10.00	50.00	40.00	40.00	50.00	40.00	50.00	40.00
5	10.00	20.00	50.00	70.00	50.00	30.00	10.00	20.00	30.00	40.00	10.00	30.00
6	20.00	10.00	10.00	20.00	40.00	20.00	30.00	30.00	40.00	40.00	50.00	50.00
Total	30.00	28.34	35.00	31.67	38.34	33.34	31.67	36.67	40.00	40.00	40.00	41.67

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Gambling Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
C 1	10.00	10.00	30.00	40.00	10.00	50.00	30.00	10.00	50.00	50.00	30.00	70.00
2	40.00	40.00	60.00	10.00	40.00	60.00	40.00	20.00	20.00	10.00	30.00	20.00
3	30.00	10.00	30.00	10.00	30.00	10.00	30.00	30.00	10.00	10.00	30.00	30.00
4	20.00	20.00	20.00	30.00	20.00	30.00	20.00	50.00	50.00	30.00	50.00	40.00
5	20.00	30.00	40.00	80.00	60.00	30.00	50.00	--	30.00	40.00	10.00	30.00
6	20.00	50.00	10.00	--	40.00	30.00	50.00	80.00	30.00	70.00	70.00	60.00
Total	23.34	26.67	31.67	28.34	33.34	35.00	36.67	31.67	31.67	31.00	36.67	41.67

Note: -- indicates that no responses were made.

APPENDIX J

Summary Table by Percentage of Correct Responses

During the Pretraining Session by Incentive Wage Group

(Based on 120 Trials per S)

(Continued)

	Gambling Wage Group											
	Trials											
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120
Group S	%	%	%	%	%	%	%	%	%	%	%	%
D 1	20.00	60.00	20.00	20.00	20.00	40.00	30.00	40.00	30.00	40.00	40.00	70.00
2	40.00	30.00	20.00	60.00	20.00	40.00	20.00	60.00	30.00	30.00	20.00	50.00
3	10.00	10.00	40.00	60.00	30.00	40.00	20.00	10.00	20.00	20.00	40.00	50.00
4	60.00	40.00	40.00	20.00	40.00	60.00	40.00	40.00	40.00	20.00	40.00	30.00
5	30.00	70.00	60.00	30.00	40.00	30.00	50.00	50.00	30.00	40.00	30.00	40.00
6	20.00	60.00	40.00	40.00	20.00	50.00	50.00	20.00	30.00	10.00	20.00	30.00
Total	30.00	45.00	36.67	38.34	28.34	43.34	35.00	36.67	30.00	26.67	31.67	45.00

APPENDIX K

Summary Table by Percentage of Correct Responses

During the Test Session by Incentive Wage Group

(Based on 240 Trials per S)

		Equitable Wage Group					Gambling Wage Group				
		Test I	Test II	Test III	Test IV	Total	Test I	Test II	Test III	Test IV	Total
Group	S	%	%	%	%	%	%	%	%	%	%
A	1	35.00	30.00	33.34	36.67	33.75	41.67	38.34	40.00	41.67	40.42
	2	33.34	33.34	28.34	23.34	29.59	30.00	43.34	38.34	38.34	37.50
	3	46.67	41.67	23.34	28.34	35.00	41.67	41.67	41.67	45.00	42.50
	4	33.34	28.34	36.67	28.34	31.67	33.34	23.34	38.34	45.00	35.00
	5	38.34	41.67	31.67	26.67	34.59	45.00	26.67	30.00	33.34	33.75
	6	38.34	41.67	26.67	41.67	32.92	25.00	46.67	41.67	25.00	34.59
Total		37.50	36.12	30.00	30.84	33.62	36.12	36.67	38.34	38.06	37.30

APPENDIX K

Summary Table by Percentage of Correct Responses

During the Test Session by Incentive Wage Group

(Based on 240 Trials per S)

(Continued)

	Equitable Wage Group					Gambling Wage Group				
	Test I	Test II	Test III	Test IV	Total	Test I	Test II	Test III	Test IV	Total
Group S	%	%	%	%	%	%	%	%	%	%
B 1	45.00	46.67	36.67	26.67	38.75	46.67	20.00	25.00	45.00	34.17
2	23.34	36.67	33.34	26.67	30.00	35.00	28.34	41.67	36.67	35.42
3	48.34	23.34	30.00	38.34	35.00	38.34	35.00	36.67	38.34	37.09
4	40.00	43.34	35.00	26.67	36.25	46.67	28.34	28.34	38.34	35.42
5	40.00	35.00	33.34	33.34	35.42	45.00	45.00	38.34	43.34	42.92
6	36.67	30.00	35.00	33.34	33.75	40.00	40.00	43.34	38.34	40.42
Total	38.89	35.84	33.89	30.84	34.87	41.95	32.78	35.56	40.00	37.57

APPENDIX K

Summary Table by Percentage of Correct Responses

During the Test Session by Incentive Wage Group

(Based on 240 Trials per S)

(Continued)

	Equitable Wage Group					Gambling Wage Group				
	Test I	Test II	Test III	Test IV	Total	Test I	Test II	Test III	Test IV	Total
Group S	%	%	%	%	%	%	%	%	%	%
C 1	33.34	36.67	38.34	25.00	33.34	30.00	36.67	41.67	38.34	36.67
2	36.67	30.00	31.67	30.00	32.09	46.67	36.67	30.00	30.00	35.84
3	38.34	26.67	28.34	45.00	34.59	36.67	35.00	35.00	40.00	36.67
4	51.67	25.00	38.34	43.34	39.59	40.00	33.34	45.00	38.34	39.17
5	40.00	38.34	26.67	38.34	35.84	40.00	35.00	31.67	28.34	33.75
6	43.34	40.00	36.67	20.00	35.00	30.00	33.34	41.67	30.00	33.75
Total	40.56	32.78	33.34	33.62	35.07	37.23	35.00	37.50	34.17	35.98

APPENDIX K

Summary Table by Percentage of Correct Responses

During the Test Session by Incentive Wage Group

(Based on 240 Trials per S)

(Continued)

	Equitable Wage Group					Gambling Wage Group				
	Test I	Test II	Test III	Test IV	Total	Test I	Test II	Test III	Test IV	Total
Group S	%	%	%	%	%	%	%	%	%	%
D 1	30.00	31.67	33.34	31.67	31.67	35.00	40.00	40.00	21.67	34.17
2	51.67	36.67	45.00	33.34	41.67	40.00	38.34	36.67	38.34	38.34
3	35.00	43.34	30.00	35.00	35.84	38.34	28.34	40.00	38.34	36.25
4	36.67	28.34	35.00	33.34	33.34	38.34	31.67	31.67	31.67	33.34
5	45.00	33.34	35.00	33.34	36.67	43.34	53.34	40.00	45.00	45.42
6	46.67	33.34	30.00	41.67	37.92	43.34	28.34	30.00	40.00	35.42
Total	40.84	34.45	34.73	34.73	36.18	39.73	36.67	36.39	35.84	37.16

APPENDIX L

Summary Table by Percentage of Choice Behavior

During the Last 20 Trials of Each Test

Presented During the Test Session

Equitable Wage Group

Choice	Test I				Test II			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
A 1	45.00	25.00	20.00	10.00	10.00	55.00	10.00	25.00
2	45.00	10.00	25.00	20.00	30.00	40.00	20.00	10.00
3	70.00	10.00	--	20.00	30.00	65.00	--	5.00
4	75.00	10.00	5.00	10.00	20.00	40.00	35.00	5.00
5	65.00	5.00	10.00	20.00	10.00	65.00	25.00	--
6	65.00	20.00	--	15.00	15.00	80.00	5.00	--
Total	60.84	13.34	10.00	15.84	19.17	57.50	15.84	7.50

Choice	Test III				Test IV			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
A 1	5.00	30.00	55.00	10.00	40.00	5.00	5.00	50.00
2	20.00	5.00	75.00	--	20.00	15.00	10.00	55.00
3	20.00	20.00	35.00	25.00	5.00	10.00	15.00	70.00
4	--	10.00	55.00	35.00	20.00	15.00	15.00	15.00
5	10.00	25.00	45.00	20.00	25.00	10.00	5.00	60.00
6	10.00	15.00	60.00	15.00	5.00	--	15.00	80.00
Total	10.84	17.50	54.17	17.50	19.17	9.17	10.84	60.84

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior

During the Last 20 Trials of Each Test

Presented During the Test Session

Equitable Wage Group (Continued)

Choice	Test I				Test II			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
B 1	65.00	--	5.00	30.00	5.00	60.00	20.00	15.00
2	35.00	25.00	20.00	20.00	15.00	70.00	15.00	--
3	65.00	25.00	--	10.00	15.00	10.00	30.00	45.00
4	65.00	10.00	5.00	20.00	20.00	60.00	15.00	5.00
5	65.00	15.00	15.00	5.00	10.00	65.00	25.00	--
6	60.00	25.00	--	15.00	--	40.00	45.00	15.00
Total	59.17	16.67	7.50	16.67	10.84	50.84	25.00	13.34

Choice	Test III				Test IV			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
B 1	--	45.00	40.00	15.00	15.00	25.00	--	60.00
2	30.00	15.00	45.00	10.00	5.00	35.00	20.00	40.00
3	--	10.00	60.00	30.00	5.00	20.00	--	75.00
4	5.00	20.00	70.00	5.00	20.00	35.00	25.00	20.00
5	--	30.00	60.00	10.00	25.00	20.00	10.00	45.00
6	10.00	15.00	50.00	25.00	10.00	20.00	25.00	45.00
Total	7.50	22.50	54.17	15.84	13.34	25.84	13.34	47.50

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior During the Last 20 Trials of Each Test Presented During the Test Session

Equitable Wage Group (Continued)

Choice	Test I				Test II			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
C 1	60.00	10.00	15.00	15.00	10.00	65.00	15.00	10.00
2	50.00	10.00	20.00	20.00	35.00	50.00	10.00	5.00
3	60.00	25.00	10.00	5.00	15.00	60.00	20.00	15.00
4	95.00	--	5.00	--	15.00	45.00	15.00	25.00
5	85.00	10.00	--	5.00	5.00	75.00	20.00	--
6	65.00	5.00	15.00	15.00	10.00	85.00	5.00	--
Total	69.17	10.00	10.84	10.00	15.00	63.34	14.17	9.17

Choice	Test III				Test IV			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
C 1	15.00	10.00	55.00	20.00	35.00	10.00	--	55.00
2	10.00	5.00	70.00	15.00	30.00	20.00	15.00	35.00
3	20.00	20.00	45.00	15.00	15.00	5.00	40.00	40.00
4	--	5.00	70.00	25.00	25.00	5.00	15.00	55.00
5	10.00	25.00	60.00	5.00	30.00	5.00	--	65.00
6	--	15.00	65.00	20.00	25.00	20.00	10.00	45.00
Total	9.17	13.34	60.84	16.67	26.67	10.84	13.34	49.17

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior During the Last 20 Trials of Each Test Presented During the Test Session

Equitable Wage Group (Continued)

Choice		Test I				Test II			
		Alternative				Alternative			
Group S		1	2	3	4	1	2	3	4
D	1	50.00	15.00	15.00	20.00	10.00	65.00	5.00	20.00
	2	50.00	20.00	10.00	20.00	40.00	10.00	20.00	30.00
	3	75.00	10.00	10.00	5.00	15.00	70.00	10.00	5.00
	4	45.00	25.00	10.00	20.00	20.00	55.00	15.00	10.00
	5	55.00	5.00	5.00	35.00	25.00	55.00	15.00	5.00
	6	65.00	20.00	--	15.00	20.00	55.00	15.00	10.00
Total		56.67	15.84	8.34	19.17	21.67	51.67	13.34	13.34

Choice		Test III				Test IV			
		Alternative				Alternative			
Group S		1	2	3	4	1	2	3	4
D	1	15.00	20.00	40.00	25.00	10.00	15.00	25.00	50.00
	2	20.00	20.00	60.00	--	10.00	15.00	10.00	65.00
	3	--	20.00	50.00	30.00	10.00	15.00	10.00	65.00
	4	5.00	30.00	55.00	10.00	15.00	15.00	10.00	60.00
	5	--	20.00	50.00	30.00	--	20.00	20.00	60.00
	6	35.00	10.00	50.00	5.00	10.00	--	25.00	65.00
Total		12.50	20.00	50.84	16.67	9.17	13.34	16.67	60.84

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior During the Last 20 Trials of Each Test Presented During the Test Session

Gambling Wage Group

Choice		Test I				Test II			
		Alternative				Alternative			
Group S		1	2	3	4	1	2	3	4
A	1	55.00	25.00	--	20.00	15.00	60.00	15.00	10.00
	2	80.00	--	--	20.00	50.00	25.00	15.00	10.00
	3	70.00	20.00	5.00	5.00	45.00	50.00	--	5.00
	4	75.00	20.00	--	5.00	15.00	55.00	20.00	10.00
	5	45.00	55.00	--	--	10.00	90.00	--	--
	6	50.00	20.00	20.00	10.00	50.00	30.00	15.00	5.00
Total		62.50	23.34	4.17	10.00	30.84	51.67	10.84	6.67

Choice		Test III				Test IV			
		Alternative				Alternative			
Group S		1	2	3	4	1	2	3	4
A	1	10.00	20.00	60.00	10.00	10.00	30.00	5.00	35.00
	2	20.00	10.00	60.00	10.00	5.00	--	15.00	80.00
	3	--	5.00	90.00	5.00	--	--	10.00	90.00
	4	--	25.00	55.00	20.00	45.00	--	10.00	45.00
	5	--	5.00	95.00	--	--	--	--	100.00
	6	20.00	15.00	55.00	10.00	25.00	5.00	10.00	60.00
Total		8.34	13.34	69.17	9.17	14.17	5.84	8.34	68.34

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior During the Last 20 Trials of Each Test Presented During the Test Session

Gambling Wage Group (Continued)

Choice		Test I				Test II			
		Alternative				Alternative			
Group	S	1	2	3	4	1	2	3	4
B	1	60.00	25.00	10.00	5.00	15.00	70.00	10.00	5.00
	2	55.00	25.00	--	20.00	30.00	50.00	10.00	10.00
	3	80.00	5.00	10.00	5.00	30.00	55.00	10.00	5.00
	4	45.00	15.00	10.00	30.00	5.00	70.00	10.00	15.00
	5	65.00	15.00	--	20.00	30.00	55.00	5.00	10.00
	6	50.00	35.00	10.00	5.00	25.00	30.00	45.00	--
Total		59.17	20.00	6.67	14.17	22.50	55.00	15.00	7.50

Choice		Test III				Test IV			
		Alternative				Alternative			
Group	S	1	2	3	4	1	2	3	4
B	1	15.00	10.00	30.00	45.00	25.00	--	5.00	70.00
	2	--	5.00	75.00	20.00	10.00	--	10.00	80.00
	3	--	10.00	75.00	15.00	5.00	20.00	5.00	70.00
	4	--	10.00	75.00	15.00	15.00	--	35.00	50.00
	5	--	15.00	65.00	20.00	30.00	5.00	35.00	30.00
	6	10.00	25.00	55.00	10.00	5.00	--	25.00	70.00
Total		4.17	12.50	62.50	20.84	15.00	4.17	19.17	61.67

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior

During the Last 20 Trials of Each Test

Presented During the Test Session

Gambling Wage Group (Continued)

	Test I				Test II			
Choice	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
C 1	50.00	20.00	15.00	15.00	35.00	45.00	10.00	10.00
2	55.00	15.00	--	30.00	40.00	30.00	25.00	5.00
3	65.00	5.00	5.00	25.00	15.00	80.00	5.00	--
4	65.00	15.00	5.00	15.00	5.00	65.00	25.00	5.00
5	75.00	--	10.00	15.00	45.00	30.00	15.00	10.00
6	70.00	--	--	30.00	20.00	65.00	15.00	--
Total	63.34	9.17	5.84	21.67	26.67	52.50	15.84	5.00
	Test III				Test IV			
Choice	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
C 1	5.00	5.00	60.00	30.00	25.00	5.00	20.00	50.00
2	10.00	15.00	65.00	10.00	20.00	10.00	40.00	30.00
3	--	20.00	80.00	--	10.00	5.00	10.00	75.00
4	5.00	15.00	65.00	15.00	20.00	--	5.00	75.00
5	30.00	20.00	35.00	15.00	20.00	--	20.00	60.00
6	--	30.00	60.00	10.00	15.00	5.00	--	80.00
Total	8.34	17.50	60.84	13.34	18.34	4.17	15.84	61.67

Note: -- indicates that no responses were made.

APPENDIX L

Summary Table by Percentage of Choice Behavior During the Last 20 Trials of Each Test Presented During the Test Session

Gambling Wage Group (Continued)

Choice	Test I				Test II			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
D 1	70.00	10.00	--	20.00	55.00	45.00	--	--
2	55.00	10.00	25.00	10.00	25.00	55.00	20.00	--
3	55.00	20.00	--	25.00	35.00	45.00	20.00	--
4	65.00	5.00	5.00	25.00	5.00	55.00	25.00	15.00
5	85.00	--	--	15.00	25.00	65.00	5.00	5.00
6	70.00	10.00	--	20.00	20.00	50.00	25.00	5.00
Total	66.67	9.17	5.00	19.17	27.50	52.50	15.84	4.17

Choice	Test III				Test IV			
	Alternative				Alternative			
Group S	1	2	3	4	1	2	3	4
D 1	--	20.00	70.00	10.00	40.00	--	10.00	50.00
2	5.00	20.00	50.00	25.00	40.00	5.00	15.00	40.00
3	5.00	15.00	65.00	15.00	5.00	--	20.00	75.00
4	--	30.00	35.00	35.00	5.00	15.00	25.00	55.00
5	5.00	25.00	45.00	25.00	20.00	--	5.00	75.00
6	--	10.00	75.00	15.00	20.00	5.00	15.00	60.00
Total	2.50	20.00	56.67	20.84	21.67	4.17	15.00	59.17

Note: -- indicates that no responses were made.